DOCUMENT RESUME

ED 452 407 CE 081 689

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TITLE Landscapes for Learning: Growing Children, Youth, Schools, and Communities. Linking Learning with Life.
INSTITUTION National Dropout Prevention Center, Clemson, SC.
SPONS AGENCY Betsy M. Campbell Foundation, Greenville, SC.
PUB DATE 2001-00-00
NOTE 35p.
AVAILABLE FROM National Dropout Prevention Center, College of Health, Education, and Human Development, Clemson University, 209 Martin Street, Clemson, SC 29631-1555; Tel: 864-656-1555; e-mail: ndpc@clemson.edu; Web site: http://www.dropoutprevention.org.
PUB TYPE Guides - Non-Classroom (055) -- Reports - Descriptive (141)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Community Education; Conservation (Environment); Educational Practices; Educational Resources; Elementary Secondary Education; *Environmental Education; Financial Support; Guidelines; Information Sources; Integrated Curriculum; Intergenerational Programs; Internet; *Landscaping; Models; Nonformal Education; Partnerships in Education; Program Guides; *Program Implementation; Resource Materials; *School Community Relationship; *Service Learning; Student Organizations; Student Projects; *Sustainable Development; World Wide Web
IDENTIFIERS Place Based Education; Sense of Community

ABSTRACT

This booklet provides information on implementing the Landscapes for Learning (LFL) program, which was conceived to bring children, youths, and communities together to learn about landscaping while beautifying local schools and communities. The booklet begins with a discussion of the concept of environmental stewardship. Described next are the objectives, benefits, and principles of LFL, which is designed to help participants develop job, teamwork, gardening, and academic skills through participatory learning activities in which all participants become teachers and learners. The next three sections present the following sets of profiles: (1) 10 LFL service learning projects for students at all levels, from preschool through graduate study; (2) 11 LFL projects linking landscaping to areas of the curriculum such as language arts, mathematics, social studies, science, and French; and (3) 3 LFL projects involving students, parents, and other community members. Guidelines for developing programs promoting learning landscapes in communities are provided along with guidelines pertaining to the following issues: getting and staying organized; partnering; promoting diversity; promoting sustainability; delegating; and addressing liability and safety. Concluding the booklet are lists of the following items: 18 possible sources of funding or in-kind services/contributions; 18 useful World Wide Web sites and other contacts; and 12 references. (MN)

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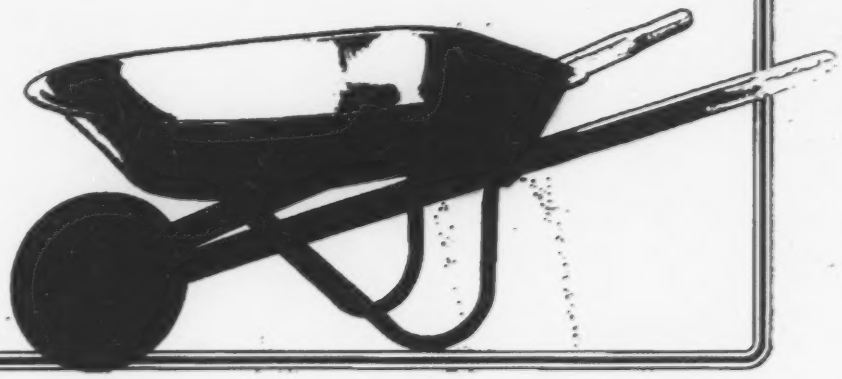
LINKING LEARNING WITH LIFE

Landscapes For Learning

Growing Children, Youth, Schools, And Communities



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Landscapes For Learning

Growing Children, Youth, Schools, And Communities

by Brenda J. Vander Mey and Sian I. McDonald

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Linking Learning With Life

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Publication of this guidebook was supported with funds from the Betsy M. Campbell Foundation.

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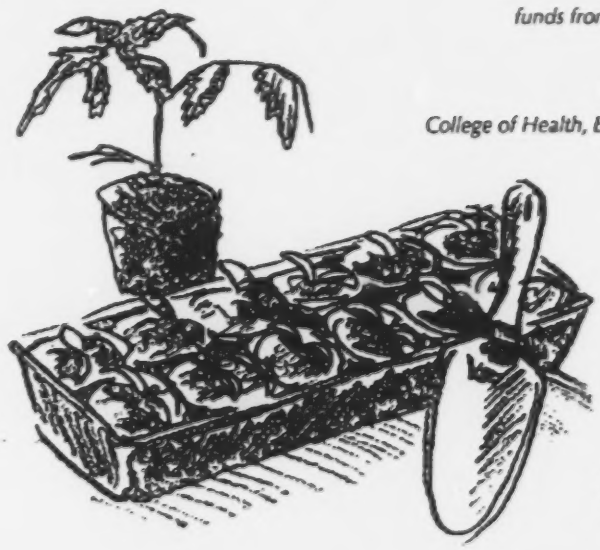

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The Landscapes for Learning program
has the good fortune
of being funded by the
Betsy M. Campbell Foundation.

Preface

"Miss Brenda! Look! An earthworm! Our garden is really getting healthy, isn't it?" Looking up, we see a child, who, just six months ago, shrieked in repulsion at the sight of an earthworm, and who also thought that all insects are bad and must be killed. She also had never planted anything, and had never seen the wildlife habitats discussed at her school. Now, she digs and plants with gusto, knows the four basic requirements for a wildlife habitat, reveres ladybugs, and wants everyone to see her earthworm!

What happened to this child? A program called Landscapes for Learning did. While Landscapes for Learning will not change the world, we are fairly certain that everyone who gets involved in the projects related to it does help change the world a little bit—and is changed a little bit in return. Landscapes for Learning projects have brought literally hundreds if not thousands of people together, learning a lot about plants and things more academic, while at the same time improving their environments and having a jolly good time! We know that children love to learn using this modality, and we have observed some teachers wondering if they might get in trouble for having so much fun on the job.

We hope that by reading through this guidebook you garner some new insights on how to "green up" communities, public spaces, and school grounds—and for growing better and stronger children, youth, communities, and schools. We hope that our suggestions, which are derived from study and actual practice—including some mistakes along the way—are helpful to you.

As you read through this book, we think that you will see that Landscapes for Learning can be used to bring many streams together: an incredible array of partners, nonformal and formal learning across many disciplines, service learning and community service, intergenerational interaction, and community strengthening—on and off school grounds.

Brenda J. Vander Mey
Sian I. McDonald

Environmental Stewardship

Environmental stewardship is of paramount importance for sustainable systems and a sustainable world. Environmental stewardship includes reducing, recycling, and reusing. It may involve changing our lifestyles so that our impacts on the earth are minimized. For instance, decreasing our use of vehicles and increasing our walking and bicycling help minimize our impacts. Environmental stewardship also can include creating and maintaining growing areas that improve the environmental health of an area. It always involves respect for nature and natural resources, an understanding of systems and habitats, and a willingness to be a caretaker.

Environmental stewardship can be enhanced by removing all barriers—real or imagined—that might prevent people of any age from taking care of their world. Barriers include knowledge and feeling comfortable with nature, for instance. Yet, formal environmental education may not always lead to improved stewardship if students are taught in a mechanical fashion, without access to nature, and without an orientation toward stewardship. As one teacher endorsing a Landscapes for Learning (LFL) project wrote, *"Giving to the earth is powerful for students. Whether helping plant a tree, studying an insect, or preparing a garden for winter, students become connected to the earth. That connection empowers them through a sense of achievement and wonder. In turn, it motivates them to want to do more, indeed building the foundation for respect."*

There has been documented success in improvement in subject matter mastery across the curriculum and respect for the natural environment when schools have adopted Environment as an Integrating Context for Learning (EIC) (Lieberman & Hoody, 1998). EIC does not actually have environmental education as the focus. Rather, students use their community and surroundings—including their school campus—as launching pads for their learning.

Landscapes for Learning promotes the creation and maintenance of outdoor spaces that can facilitate, broaden, and deepen learning on school grounds and other places. LFL encourages the use of "Learning Landscapes" in conjunction with each academic area offered by schools. As another teacher wrote, *"Academics—math, science, social studies, art, and language arts all come alive using nature as a learning lab. Nature is relevant learning at its best!"*

Landscapes for Learning has had to work with some teachers and others so that they could see how LFL can be applied to or used in conjunction with courses other than math and science. Fortunately, that is not always the case. Moreover, as will be detailed below, LFL, like environmental stewardship itself, is not restricted to formal education or to school sites.

Another barrier that Landscapes for Learning has been working with is the idea held by some that only "experts" can or should be involved in activities such as gardening, creating nature trails, and creating outdoor learning environments.

Our earth is too fragile to restrict the fate of its future to the experts. In addition, environmental stewardship is every person's responsibility. Furthermore, if we want young people to be lifelong stewards, what better way to make environmental stewardship integral in their lives than through Landscapes for Learning? The trick, then, is coming up with ways to expand the net to include more stewards. Landscapes for Learning, as a program, does this in a number of ways, as reflected in other parts of this book.

About Landscapes for Learning

Landscapes for Learning is a program of outreach provided by the Clemson University Cooperative Extension Service in South Carolina. Its concepts and precepts, processes and stories, however, can be easily replicated in other states, provinces, and countries.

Mission Statement

Landscapes for Learning exists to promote environmental stewardship, formal and nonformal environmental education, pre-kindergarten through graduate school service learning, and community strengthening through the creation and celebration of Learning Landscapes.

What is a "Learning Landscape?"

A "Learning Landscape" is any area with plants, or with plants to be added, which can serve as a catalyst for learning. The learning can be formal or nonformal, or a combination of both. The area can be indoors or out-of-doors. It can be on the ground or in the water.

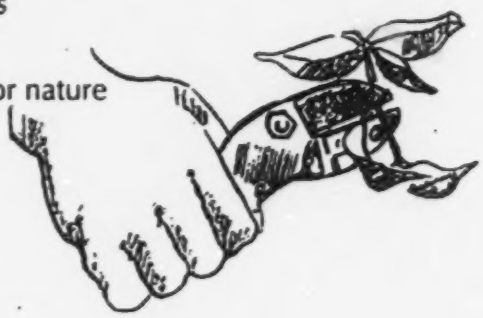
What Can Be Learned?

- Job skills
- Team work
- Gardening
- Academic skills, e.g., geology, entomology, nutrition, science, math, foreign languages, agriculture, reading, writing, songwriting, poem writing, drawing, painting, sculpting, and social history—including facts about other cultures and their uses of plants

What Other Benefits Might There Be?

- Community relations enhancement
- School/university/community partnerships
- Service learning for all ages

- "Image" enhancement
- Fun places for children to learn and play and create
- Alternatives for children and at-risk youth—or kids who are just simply bored
- Helps with social responsibility and self-esteem
- Interactions across the generations
- Increased volunteerism
- More knowledge of and respect for nature
- More pride in accomplishment
- Stronger sense of place
- Empowerment



What Does LFL Do?

As a program of outreach, LFL serves as a repository of information that is distributed free, or loaned out, to residents of South Carolina. LFL also hosts the annual Betsy M. Campbell Gardening with Children Symposium (open to people outside of South Carolina as well as those in the state), sponsors a mini-grant competition for schools and community groups, maintains an information-packed web site, distributes newsletters, holds free meetings for the public, makes free site visits, gives free consultations, works hands-on in several projects, and has helped sponsor International School Grounds Day and a Millennium Green conference. In as many ways as possible, LFL serves as a resource for individuals and groups who are interested in creating and maintaining Learning Landscapes.

Principles of Landscapes for Learning

- Participatory learning is the most effective strategy for nonformal and formal learning, and for instilling environmental stewardship.
- Participation fosters ownership, which enhances sustainability.

- ◇ A Learning Landscape should reflect the wishes and tastes of the participants/community.
- ◇ Plant selection should be environmentally sound. This can be accomplished by following a basic principle in Integrated Pest Management: Use plants that are pest and disease resistant and drought tolerant.
- ◇ Everyone is both a teacher and a learner.
- ◇ Each one, teach one.

Learning Landscapes, Pre-K-12 Service Learning, and Community Service

In Pre-K-12 school settings, programs similar to Landscapes for Learning have been referred to as "environmental service learning" (Clifton, Mauney, & Falkner, 1998). All school-based LFLs have been used as service learning projects in South Carolina. Some also have combined the service learning with community service. It also should be noted that all school-based LFLs are partnered with an Extension Agent or Master Gardener from the Extension Office in the county in which the project is located. A few of the projects are listed below:

◇ The project, "Bringing Bog and Forest Habitats to Children's Play Places," was completed at the Early Childhood Development Center in Charleston, South Carolina. This Center has an indoor laboratory preschool program for children ages 2-6. This LFL project was designed to turn their playground into an outdoor classroom. The sandy playground was transformed into a series of playscapes that included butterfly gardens, vegetable gardens, grassy areas, and areas with water features. In this way, students, teachers, and parents were able to extend the indoor laboratory to one situated in the out-of-doors. Even though the children at this Center are relatively young, they were involved in every phase of developing their Learning Landscapes. These spaces also have become places where parents, grandparents, children, and neighbors gather to listen to music and hold art shows and plays. In addition, the Center plans to host an annual "open garden" event to share with the community what they have learned from and in the Learning Landscapes.

◇ In Anderson, South Carolina, Dr. Larry Kowalski, a science teacher with Project Challenge, worked with 124 fourth graders and Hospice of the Upstate to create two Carolina Fence Gardens—butterfly gardens promoted by Habitat Stewards of the South Carolina Wildlife Federation—at the Hospice. This project also was used to enhance math and science knowledge as well as providing the service component needed for the children to become Junior Master Gardeners.

◇ RAVEN Inc. (Re-Routing Avenues, a program for children and youth) teamed up with Eden Gardens Assisted Living Facility in Greenwood, South Carolina, and with the Clemson University Extension Service and the South Carolina LINC (Linking Intergenerational Networks in Communities) and worked with four different after-school programs to bring elderly people and children together to create wildlife habitats at the assisted living facility. In a nonthreatening setting, the children learned what wildlife need in order to sustain them, and they had the opportunity to serve older people in their community.

◇ In Iva, South Carolina, students in Crescent High School's agricultural program are producing vegetables on a five-acre site. These vegetables will be sold at a Community Farmers' Market that the school is creating. Students are making brochures that explain the foods being sold and how these foods can be used. These brochures are free to visitors.

At the college and university level, this possibility also exists and is expanding at this time.

◇ Prior to officially launching Landscapes for Learning, Dr. Vander Mey, sociologist at Clemson University, and her Environmental Sociology graduate students worked with a horticulture professor at Clemson University, his students, and K-12 teachers and students in Anderson County School District 4 (South Carolina). The school district had received a Learn and Serve America grant and sought help in fundamentally transforming a park in Pendleton, South Carolina. Clemson University's Master Planner volunteered his time and went into the K-12 classes, discussing design principles and whetting the students' appetites for improving the park. On Saturdays, Dr. Vander Mey, the Master Planner, and community residents met in the park, cleaned it, and discussed what they wanted the park to be like and used for. The

Master Planner took all of these ideas and created the Master Plan. The university and public school students and faculty planted over 90 trees and shrubs, green-screened unsightly views, and rehabilitated shelters.

◇ A graduate student enrolled in Environmental Sociology at Clemson University went to middle schools in Upstate South Carolina and conducted sessions on Urban Forestry. The middle school children applied the knowledge to their science courses and also were expected to teach younger children what they had learned. Where possible, tree plantings also occurred.

◇ Professors in horticulture, landscape architecture, and sociology at Clemson University worked together with students and owners of new low-income houses to create sustainable landscapes around the homes. This project involved Habitat for Humanity homes as well.

◇ Students enrolled in the sociology course, Landscapes for Learning, at Clemson University used Learning Landscapes as a tool for community improvement and human empowerment at Westview Homes in Greenville, South Carolina. Other students in other semesters would serve as volunteers or as paid interns/employees at this same spot. Ultimately, Westview Homes became the first public housing project in the nation to contain a Certified Backyard Wildlife Habitat.

◇ Students enrolled in the sociology course, Social Problems, are helping Pickens Elementary School develop a series of wildlife habitats, at the same time helping children with their reading, math, and speaking skills.

◆ Other students in the Social Problems course have worked at alternative schools. They have mentored the students at the schools, and also engaged in gardening and gardening-related activities with them.

Environmental Education and Then Some: Linkages to Curriculum

For teachers in the public schools, anything that appears to be additional, such as LFL, must be carefully considered in terms of time and "fit" with the learning standards. There are other publications that illustrate how programs such as LFL can interface with standards (e.g., Clifton et al., 1998; Takahashi, 1999). These are very real concerns, as we all can well imagine. Several teachers have immediately latched onto LFL as a way to help the children master required materials—and have fun doing it. Thus, LFL may actually lessen the burdens perceived to be associated with teaching, learning, and making standards, if well thought out and integrated into lesson plans. In addition, while environmental education or environmental science would seem to have the most logical or "natural" fit with LFL, actually it can enhance and be used with every discipline in the curriculum.

◇ Second grade classes at Duncan Elementary School in Duncan, South Carolina, created a butterfly garden to assist them in an integrated study of butterflies across the curriculum. **Language art skills** that were brought to bear included conducting research on the lifecycle of butterflies and habitats for different species of butterflies, and reading, writing, and speaking about what was learned. To design, plan, and implement the garden, **math skills** used included prediction, observation, probability, geometry, and problem solving. Measurement and estimation were used in conjunction with the different growth cycles of the butterfly species present. In the area of **science**, skills focused on included relationships between organisms and environments; phases of the lifecycle; and process skills such as observation, classification and communication. **Mapping skills** were used to track the migration patterns of butterflies and to identify plants appropriate for the school's planting zone. Having the students work in groups enhanced **social skills**. Knowledge of the regions of the state is part of the **social studies** curriculum, and the garden was used to enhance that area of learning.

◇ St. Mark's Elementary School in Kingstree, South Carolina, also has designed and implemented a butterfly habitat on their grounds. Teachers there have used the habitat as a partner in learning in many ways. In the **language arts** area, students keep journals about their experiences, write reflections, and read books about gardens and butterflies. The interface between the garden and **social studies** involves encouraging stewardship among the children by having them keep their environment clean and recycling. In the **arts** category, the children drew the designs for the garden. For the **mathematics** component, the children used measurement and geometry, and also made graphs of growth patterns and temperatures.

◇ Dacusville Middle School in Easley, South Carolina, is in the process of creating a series of Learning Landscapes on what was barren property surrounding their school. When completed, they will have butterfly habitat gardens, nature trails, and habitats for birds and other small wildlife. Since the school's main challenge is improving the **science** test scores, a heavy emphasis is being placed on the science/ Learning Landscape interface. With the outdoor laboratory, the students are able to have hands-on experience in taking samples, making observations, making field notes, and using scientific instruments in an applied setting.

◇ The Landscapes for Learning project at York Junior High School in York, South Carolina, is called "Bird Wise 2000" and focuses on creating and maintaining bird habitats on the school grounds. Academic areas affected include soil **science**, entomology, and natural resources. Students learned which native trees were suited for which birds, the growth habits of these trees, and how to plant and maintain them. The habitat creation helped them understand the importance of insects in the ecosystems and how to identify an array of plants, birds, and insects. Students also learned about different soil types. They also created and drew their own habitat plans.

◇ West End Elementary School in Easley, South Carolina, began their series of Learning Landscapes with a butterfly habitat garden. **Math, science, language arts,** writing (poetry), and many other disciplines were interfaced with the garden's creation and maintenance. To celebrate the garden, children, teachers, parents, and community volunteers had a garden party. They recited the poetry that they wrote. In addition, the children made a video that covered each stage of the garden's development, from soil testing to ordering plants, to planting and having the garden party.

◇ Belle Hall Elementary in Mt. Pleasant, South Carolina, has had its students conduct **research** on the habitat needs of butterflies and small wildlife, and create research posters relaying the results. The students also had a bird box painting contest and created a **video**. In addition, these students had displays and made presentations at the local Wal-Mart for Earth Day, and they presented to and hosted attendees at the annual Betsy M. Campbell Gardening with Children Symposium in May 2000. Their habitat garden was dedicated at that time as well.

◇ The nature trail LFL project at Southside High School in Greenville, South Carolina, engaged the **Biology for Technologies** students in surveying the habitat areas and studying the natural vegetation in the habitats around the nature trail. **Math** students used a Global Positioning Satellite to graph all elements of the nature trail.

◇ Students at Crescent High School in Iva, South Carolina, are using their agricultural production site to help teach the **history** of South Carolina. Students in **family science** courses are developing recipes for the food stuffs being grown; then they are testing these recipes for nutritional value.

◇ Students at Redcliffe Elementary School in Aiken, South Carolina, are developing habitats that will help in many curricular areas and satisfy the state standards. Teachers will rely heavily upon the Learning Landscapes to help in the Process Skills and Knowledge of **Science**

domains. Processes include observing, classifying, measuring, inferring, and communicating. Knowledge includes actual content, concepts, and organizing principles that help explain and predict phenomena.

◇ At DuBose Middle School in Summerville, South Carolina, students, parents, and teachers have created a bog garden. **Science** classes are taught using this garden. In addition, and this is a nice little touch, students in the **French** class studied the names of plants in English, then learned them in French—then they labeled the plants in both languages!

◇ Every Landscapes for Learning project that involves the out-of-doors helps schools meet the Outdoor Education Requirement set by the South Carolina Department of Education.

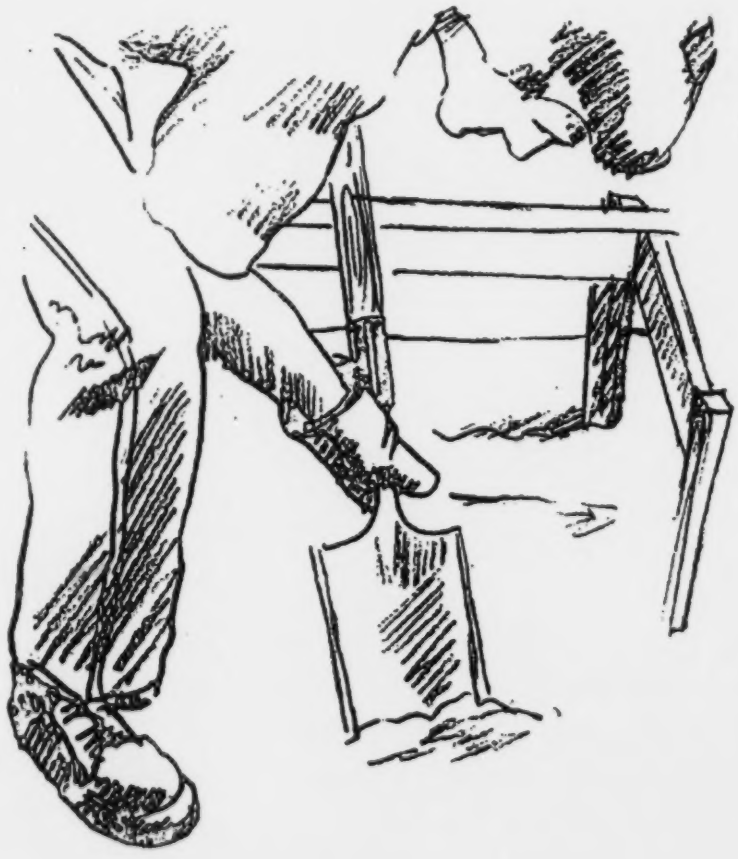
Learning Landscapes and Schools as Communities

Ideally, schools should not be places where teachers come to teach and students come to learn, and that's it. In the best of all worlds, schools should be communities. They should be places where parents, grandparents, and community volunteers are seen every day. They should be places where students feel a sense of belongingness and contribution. It stands to reason that the more "community-like" a school is, the more interested in and successful at learning the students will be. Likewise, morale of teachers and staff also should be better. Landscapes for Learning can serve as the catalyst for facilitating or strengthening a sense of community in our schools. In South Carolina, every LFL project has involved parents, grandparents, and community members. Reports from project leaders indicate that the Learning Landscapes have increased the sense of community at their schools.

◆ Lonnie B. Nelson Elementary School in Columbia, South Carolina, has long enjoyed active community participation. Their LFL project enhanced that, while strengthening their curriculum at the same time. For this project, known as Carolina Garden, a parent volunteer was the Principal Investigator. It involved conducting research about the vegetation and social history of the five ecoregions of the state. Then, students, teachers, parents, and volunteers designed a courtyard to contain gardens representing each of the regions. Complementing the gardens are murals that also depict each region. This project helped satisfy some of the state's educational standards, and went a very long way toward community enhancement as well.

◆ Oakway Middle School in Westminster, South Carolina, created a garden that helps foster a living history of the community. While the garden is being used for environmental science classes and other courses, it is also a gathering point for the surrounding community. An Extension Agent, teachers, parents, and community volunteers assist high school students who work with the middle school children at the site. The public has free access to the garden.

◇ At Joanna-Woodson Elementary School in Joanna, South Carolina, students, teachers, and parents have created a living outdoor laboratory. This laboratory is used by the students to help them become naturalists and to enhance their environmental stewardship. In the first six months from creation alone, the garden has had over 500 visitors from other schools and the surrounding community. The laboratory has created a stronger sense of community at the school, and with the larger community as well.



Learning Landscapes in Communities

As previously mentioned, a precursor to the official launching of Landscapes for Learning was the park project in Pendleton, South Carolina. This project brought K-12 students, their parents and teachers, community members, and faculty and students from Clemson University together in a public space. The park has been permanently improved as a result. Now, parent groups help maintain the park.

Currently, Landscapes for Learning is in the planning stages with an array of groups for a planting project around Clemson University's stone gates, and a complete series of Learning Landscapes—including soil erosion control demonstrations along Lake Hartwell at the South Carolina Department of Natural Resources (DNR) site near Clemson, South Carolina. One class of college students already has been involved in some preliminary soil erosion plantings. More college students will become involved. The gates projects will involve one class of students enrolled in a Turf Management course at Clemson and several student organizations who will fulfill some community service hours through the project. In addition, for both the gates projects and the DNR project, LFL will help bring in K-12 students who can fulfill some service learning and community service requirements through these projects.

When completed, the DNR site will be a demonstration site open to the public. Schools will be encouraged to visit the site to get ideas for creating a series of Learning Landscapes on their own grounds.

Landscapes for Learning also works at Westview Homes in Greenville, South Carolina. Westview is a public housing complex and has presented unique challenges due to resident turnover, vandalism, and resident neglect. In addition, adults tended to see the class sessions as sessions for children, and adult attendance was sporadic. On the other hand, LFL is also working in another public housing complex just one and a half blocks from Westview. This second complex is called Brookhaven Apartments. There, the residents have created a culture of nonviolence and have worked to maintain what

has been created. In addition, some of the adults attend Learning Landscapes class sessions, which are based on the South Carolina Master Gardener manual. This helps account for the success at Brookhaven.

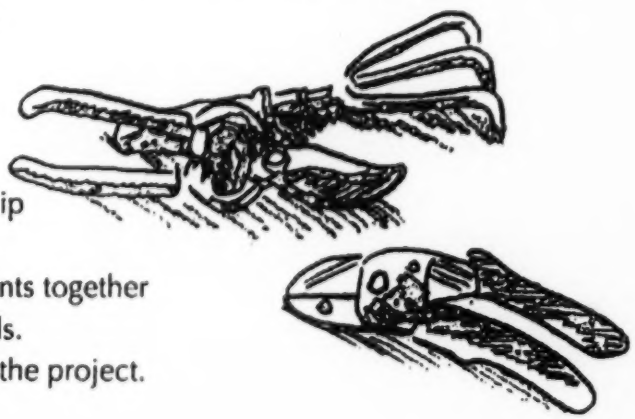
In Georgetown, South Carolina, an Extension Agent is working with the local Beautification Committee and elected officials, 4-H, Boy Scouts, and schools to begin a series of Learning Landscapes on public land. The Learning Landscapes will be used as outdoor laboratories by the schools and as tourist attractions for the community. Community members also will use the spaces for recreational and educational purposes.

Public housing complexes are obviously unique settings, and many factors should be considered before agreeing to help create Learning Landscapes there. These include:

- safety and security
- residents' willingness to participate
- degree of resident mobility
- whether the Housing Authority will engage as a true partner

Regardless of the type of community in which you work, a few "musts" are always in order.

- Know the community.
- Understand formal and informal networks of knowledge and leadership in the community.
- Bring community segments together to share visions and goals.
- Let the community own the project.



Issues and Challenges

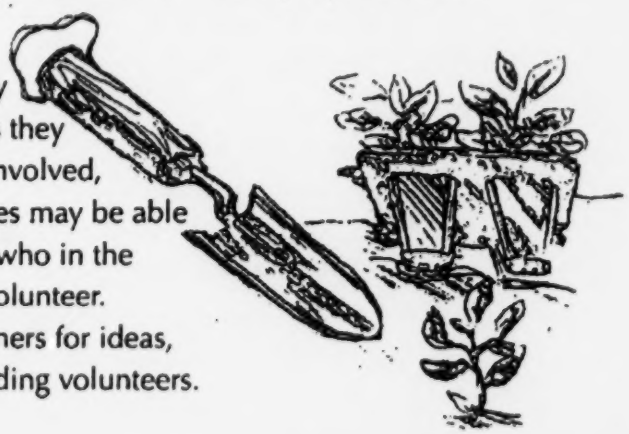
As with anything else, Landscapes for Learning projects, though exciting, useful, and fun, are nonetheless confronted with challenges and problems. These include getting organized, partnering, diversity issues, sustainability, and liability and safety issues. Below are some suggestions for these challenges.

Getting and Staying Organized

First, gather about you as many other persons whom you think might be interested in a Landscapes for Learning project. Then, together:

- Identify goals, and list potential barriers or challenges.
- Brainstorm about potential sources of funding and in-kind contributions.
- Call your county or parish Extension Service and arrange to meet with an Extension Agent.
- Call a meeting of all interested parties to articulate goals, avenues to goals, and stages of implementation.
- Set priorities.
- Come up with a Master Plan that reflects the group's vision and anticipated timeline. This Master Plan should not be written in stone and does not necessarily have to be created by a professional.

Children and youth can help with all of these stages, especially in articulating the types of spaces they would like to see. If drawing is involved, students and teachers in art classes may be able to do an adequate job. Identify who in the community might be willing to volunteer. Contact your local Master Gardeners for ideas, assistance, and suggestions regarding volunteers.



Partnering

- ◇ Start right where you are.
- ◇ Contact your PTO or PTA, your local Extension Service, Master Gardeners, local colleges and universities, local volunteer organizations, local businesses, Department of Natural Resources, Soil and Water Conservation Service, National Wildlife Federation, school support groups, faith community groups, elected officials, Boy Scouts, Girls Scouts, etc.
- ◇ Bring individuals and groups in as true partners, letting their visions, resources, and skills help "grow" your project.
- ◇ Attitudes and turf issues: If you know this can work, try to give naysayers and turf hoarders a "piece" of the project.
- ◇ Build on the strengths of each person and group.
- ◇ Let "each one, teach one."

Diversity and Other Issues

- ◇ Be sensitive to differences in taste and in perceptions of what looks good or is wanted in the Learning Landscapes.
- ◇ Ideally, create Learning Landscapes that celebrate and educate about diversity.
- ◇ If the Learning Landscapes are on school grounds, work toward making strong tie-ins back to the curriculum.
- ◇ Try to minimize the possibility of vandalism by being very inclusive, giving everyone an opportunity to have ownership of the project, putting up signs indicating whose project this is, and, if in a vandalism-prone zone, asking local law enforcement to check on your project.
- ◇ With so many people involved in the project, make sure that two individuals are responsible for communicating with all groups and individuals involved.

Sustainability

Several factors can enhance the possibility that a LFL project will be sustainable.

- First, make sure that there is not one sole "owner" of the project, while at the same time ensuring that several individuals are being held responsible for the project.
- Second, and especially with school grounds projects, make sure that children and youth are truly participants—not recipients.
- Third, do not try to get all the Learning Landscapes in place in one fell swoop. Subsequent generations of students will feel very little ownership of something "done" by others. So, always make sure that something still needs to be done or else redone.
- Draw up a strategy for donations and in-kind contributions to assist in later stages of LFL.
- Very importantly, make sure that there is a written and agreed upon maintenance plan. For instance, see if families will adopt the Learning Landscapes for two weeks at a time during times when school is not in session. If working in public spaces, secure an agreement with the municipality that workers will be sent to maintain the spaces, or get a group to adopt the spaces permanently.
- Finally, use plants that are not exotic. Rather, use native or naturalized plants that are pest and disease resistant, drought tolerant, and noninvasive.

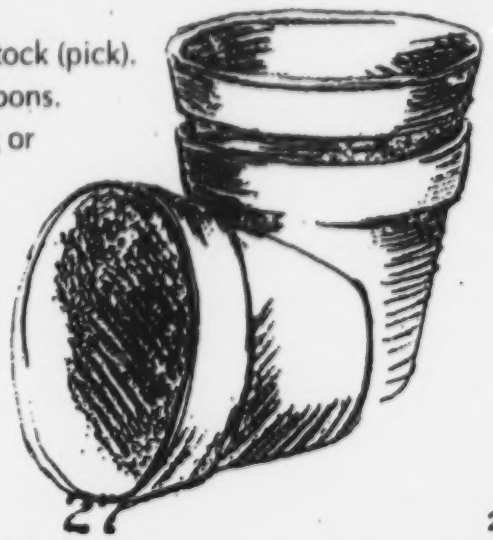
Delegate

No single individual can do this alone, nor should one person do this alone. Having only one person in charge is almost a sure way to fail. By including people with different experiences, abilities, visions, and resources, the vision becomes larger and the possibility of success increases. By delegating, we make best use of everyone's abilities, foster a sense of communal ownership, and avoid exhausting people.

Liability and Safety

There are many steps you need to take to ensure the safety of all involved.

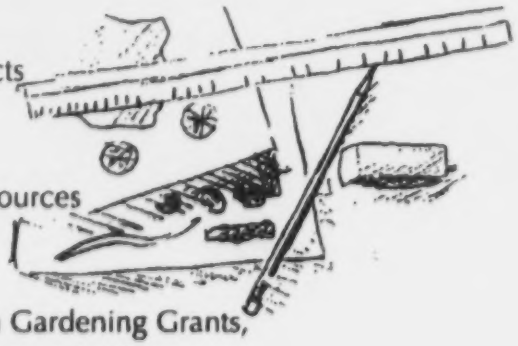
- Get a Memorandum of Agreement or Memorandum of Understanding.
- Secure written permission from a parent/guardian for each child's participation, permission to interview, permission to photograph, permission to videotape, and so on.
- Ask adult participants and volunteers to sign waivers releasing you from liability if they are injured.
- Train all participants in the proper use, handling, and storage of tools.
- Always check for utilities before digging in an area.
- Know the limits on use of a site.
- If possible, get copies of drawings related to the site.
- Identify alternatives to toxic plants.
- Have a maintenance plan.
- Never be alone with a child.
- Always have a first aid kit handy.
- Insist that participants wear hats, gloves, and tie-up shoes.
- Have drinking water readily available.
- Have written rules on tools:
  - Children may not use the mattock (pick).
  - Tools are neither toys nor weapons.
  - Never use a tool that is too big or heavy for you.
  - Always use the right tool for the job.



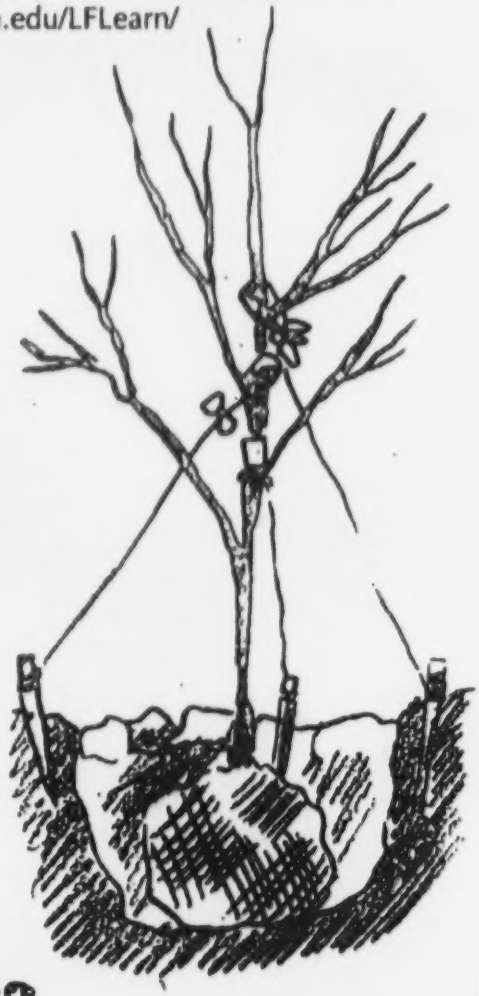
Possible Sources of Funding or In-Kind Services and Contributions

All projects seem to be in chronic need of money, supplies, and expert advice. Most teachers need help identifying to whom to turn. The list below should be a fairly good starting point. Please note that some of these sources or organizations will not be in a position to give money, but they might help with such things as reading materials, bird boxes, soil testing, or free consultation on your projects. They might include:

- the nearest Cooperative Extension Service office
- local and national 4-H chapters (contact your Extension Service)
- local chapters of civic organizations
- local Wal-Mart stores for school projects
- local nurseries and greenhouses
- your state's Department of Natural Resources
- your state's Wildlife Federation
- National Gardening Association, Youth Gardening Grants, 800-538-7476 www.garden.org/edu/nga-edu6.htm
- Toshiba America Foundation—if the project will help improve science and mathematics education—212-588-0820. www.toshiba.com/about/taf/smallgrants.html
- Lorrie Otto Seeds for Education Fund www.for-wild.org/sfecvr00.htm
- National Tree Trust, 800-846-8733, ext. 13
- Captain Planet Foundation, 404-827-4130
- American Honda Foundation, www.americahonda.com



- Target All-Around Scholarships Awards for High School Seniors and College Students/Teachers
  http://target.com/schools/scholarships/scholarships.asp
- Ben & Jerry's Foundation, 802-244-7105
- Toyota Tapestry Grants, c/o NSTA, 1840 Wilson Blvd., Arlington, VA 22202-3000
- Human-I-Tees, the Environmental Fundraising Company. (Also has a grants program) www.humanitees.com/
- For more sources, access the Landscapes for Learning newsletters, on-line at http://business.clemson.edu/LFLearn/



Useful Web Sites and Other Contacts

- National Wildlife Federation www.nwf.org
- Landscapes for Learning http://business.clemson.edu/LFLearn/
- Learning Through Landscapes www.ltl.org.uk
- Green Brick Road http://gbr.org/home.htm
- Kids in the Garden
  www.gardengatemagazine.com/projects/kid.htm
- Teaching KATE (Kids About the Environment; curriculum is free; approved as per South Carolina's Math and Science standards)
  www.teachingkate.org/
- North American Association for Environmental Education
  www.naaee.org
- Center for Environmental Education at the New England Antioch Center www.schoolsgogreen.org/
- Project WILD (has curriculum in place) www.projectwild.org/
- The South Carolina Garden-Based Learning Network, Dr. Arlene Marturano, Summit Parkway Middle School, 200 Summit Parkway, Columbia, SC 29223
- South Carolina Wildlife Federation www.scwf.org
- People-Plant Council www.hort.vt.edu/human/ppcmenu.html
- National Community Gardening Association
  www.garden.org/
- SC Butterfly Research Project—jculin@clemson.edu, Dr. Joe Culin, Entomologist, Clemson University, 864-656-5041
- Environmental Network News www.enn.com/aboutenn/
- Seeds of Change Network www.mnh.si.edu/garden/history/
- Green Teacher www.greenteacher.com/
- Seeds Foundation (Canada), http://greenschools.ca/seeds/home.html

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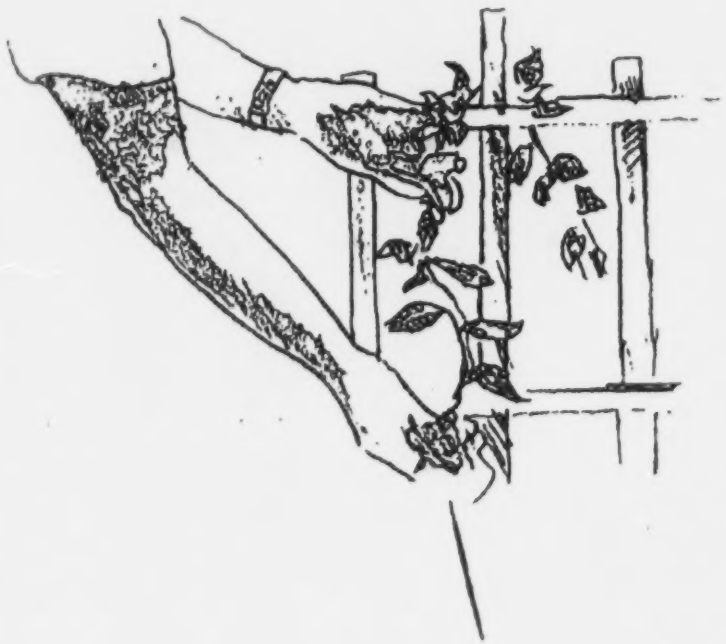

Acknowledgments

We wish to extend thanks to the following: Bob and Betsy Campbell; Dr. John W. Kelly; The Betsy M. Campbell Foundation; Dr. Jere Brittain; Dr. Daniel B. Smith; Dr. John Ryan; Dr. Bob Polomski; Marty Duckenfield; Dr. John Kent; Bob Rogers; Claude Smith, Jr.; Dan Harper of Harper's Plants (Pendleton, SC); Gerald Vander Mey; Brett McDonald; the National Wildlife Federation; Stephanie Stowell; Angela Viney; Ed Falco; Rick Huffman; the South Carolina Wildlife Federation; South Carolina Department of Natural Resources; the South Carolina State Department of Education; Habitat Stewards of South Carolina; the Greenville (SC) Housing Authority; the South Carolina Botanical Garden; Clemson University Cooperative Extension Service; the South Carolina Native Plant Society; Clemson University's Service Learning Collaborative; Dr. Lisa Wagner; Dr. Barbara Foltz; Dr. Joe Culin; Caroline Schreier; Nick Eason; Julie DeLuccy; Charles Hafley; Kelly Hicks; Natashia Mullins; Keyonna Baker; Clemson University's service sorority, Gamma Gamma Sigma; and the brave and enthusiastic teachers, Master Gardeners, students, and community members who have participated in and cheered on Landscapes for Learning.

We are thankful that Clemson University's Office of Public Service and Agriculture, the South Carolina Botanical Garden, and the Clemson University Cooperative Extension Service believed us when we said this stuff could work and that Clemson could help make it happen.

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National Dropout Prevention Center

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